

Remarks

Entry of the amendments, reconsideration of the application, as amended, and allowance of all pending claims are respectfully requested. After entry of the amendments, claims 1-3 and 6-76 are pending.

With the above amendments to the independent claims, applicants are clarifying the data that is stored in the global data storage. This is not in acquiescence to the rejection, but instead, in a bonafide attempt to further prosecution of this application. Support for the amendments can be found throughout the specification (e.g., page 26, lines 24-26 through page 27, lines 1-10), and therefore, no new matter is added. Support for the new dependent claims can also be found throughout the specification. For instance, support for claim 75 can be found on page 27, lines 3-5; and support for claim 76 can be found on page 12, lines 15-20. No new matter is added.

In the Office Action dated January 28, 2004, claims 1-3 and 6-74 are rejected under 35 U.S.C. 102(e) as being anticipated by Wipfel et al. (U.S. Patent No. 6,338,112). Applicants respectfully, but most strenuously, traverse this rejection to any extent deemed applicable to the amended claims.

One aspect of applicants' invention relates to the managing of clusters of a computing environment. Various cluster components, having different dependencies upon one another, are provided in order to manage clusters of the computing environment.

As one particular example, applicants claim a system of managing clusters of a computing environment, in which the system includes a registry component to provide global data storage for global data of a cluster of the computing environment, the cluster including a plurality of nodes of the computing environment and the global data comprising configuration data of multiple nodes of the plurality of nodes; a configuration component to maintain data locally on at least one node of the plurality of nodes, and to store global data in said registry component; a liveness component to provide status of one or more communications paths of the cluster, the liveness component being dependent upon said registry component and the configuration component; a group services component to provide one or more services to one or more other components of the cluster, the group services component being dependent on the registry component, the configuration component and the liveness component; and a resource management component to provide communications to one or more resource controllers of the

cluster, the resource management component being dependent on the registry component, the configuration component and the group services component. Thus, various components are provided, each having a particular task and most of which having dependencies on other components.

Applicants respectfully submit that one or more features of applicants' claimed invention are missing from Wipfel, and therefore, Wipfel fails to anticipate applicants' claimed invention. For example, applicants claim a registry component to provide global data storage for global data of the cluster, in which the global data includes configuration data of multiple nodes of the cluster. There is no discussion in Wipfel of a registry component to provide global data storage to store configuration data of multiple nodes of the cluster. Instead, the numerous disjoint sections of Wipfel cited in the Office Action describe, teach or suggest features other than that claimed by applicants. Although those disjoint sections might include one or more of the terms claimed by applicants, such as global or storage, or similar sounding but quite different terms, such as register, when read in context none of those terms describe, teach or suggest applicants' claimed registry component to provide global data storage for global data that includes configuration data of multiple cluster nodes. The words cannot be read alone, but must be read in context.

For example, the Office Action cites FIG. 5 and Col. 9, lines 42-45, of Wipfel as one instance of describing a registry component. Although the term register is used, a register is very different from the registry component being claimed by applicants. The register of Wipfel is, for instance, a memory location or structure that can be probed to determine whether the node local to the register is alive. Such a register is very different from the registry component claimed by applicants. In sharp contrast to applicants' claimed registry component, the register cited in Wipfel is local to a particular node and just includes information, such as liveness information, regarding that node. It does not include global configuration data of multiple cluster nodes, but only information for one node. Thus, the register of Wipfel does not describe, teach or suggest applicants' claimed registry component.

As a further example, FIG. 1, #114; FIG. 2, #114; Col. 6, lines 38-44; and Col. 14, lines 66-67 are all cited as providing global data storage for data of a cluster. However, like the register of Wipfel, the components in each of these sections also fail to describe, teach or suggest applicants' claimed element of a registry component to provide global data storage for global

data that includes configuration data of multiple cluster nodes. For example, #114 is simply a shared non-volatile storage. This is described in Col. 6, as indicated. However, the mere mention of a shared storage is not a description, teaching or suggestion of storage that includes particular data. Applicants are not merely claiming storage, but instead, are explicitly claiming global data storage for global data of a cluster that includes configuration data of multiple nodes of the cluster. This is not described in Wipfel, and the mere mention of storage is not a teaching of what is claimed. Thus, Wipfel does not describe, teach or suggest applicants' claimed invention.

As yet a further example, global pool 212 is cited as teaching applicants' claimed element of a registry component to provide global data storage for global data of a cluster. Applicants respectfully submit that the term "global" alone is not enough to describe, teach or suggest applicants' claimed invention. The global pool in Wipfel is a pool of resources (e.g., memory buffers; credits towards bandwidth, etc. (Col. 8, lines 23-28)) that can be allocated to the nodes, and not a teaching of global data storage. In particular, it is not a teaching of global data storage that includes configuration data of multiple cluster nodes. It is simply a pool of shareable resources. Thus, the resource pool of Wipfel does not describe, teach or suggest applicants' claimed registry component to provide global data storage for global data of a cluster, in which the global data includes configuration data of multiple nodes of the cluster.

Based on the foregoing, applicants respectfully submit that, at the very least, Wipfel fails to anticipate applicants' claimed element of a registry component to provide global data storage for global data of a cluster, in which the global data includes configuration data of multiple nodes of the cluster.

Further, since Wipfel fails to describe, teach or suggest applicants' claimed registry component, it follows that the claimed dependencies on that component are also not described, taught or suggested in Wipfel.

For all of the above reasons, applicants respectfully submit that independent claim 1, as well as the other independent claims, are patentable over Wipfel. Further, the dependent claims are patentable for the same reasons as the independent claims, as well as for their own additional features.

As one example, claim 75 has been added to further define that the cluster configuration data includes node definitions for multiple nodes of the cluster. There is no such description in Wipfel. Thus, Wipfel does not describe, teach or suggest this claimed element.

Moreover, claim 76 further characterizes the computing environment as a shared nothing environment (i.e., an environment in which the nodes do not have shared physical resources). This is not described, taught or suggested in Wipfel. As a matter of fact, Wipfel clearly teaches away from a shared nothing environment by requiring a shared non-volatile storage 114 (FIG. 1, FIG. 2). Thus, Wipfel does not describe, teach or suggest this aspect of applicants' claimed invention.

Based on the foregoing, applicants respectfully request an indication of allowability for all pending claims.

Should the Examiner wish to discuss this case with applicants' attorney, please contact applicants' attorney at the below listed number.

Respectfully submitted,

Blanche E. Schiller
Blanche E. Schiller
Attorney for Applicants
Registration No.: 35,670

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HESLIN ROTHENBERG FARLEY & MESITI P.C.
5 Columbia Circle
Albany, New York 12203-5160
Telephone: (518) 452-5600
Facsimile: (518) 452-5579